



Clinical and Biochemical Aspects of the Development of Chronic Viral Hepatitis with a Comorbid Course of Chronic Glomerulonephritis

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Received 5th Mar 2022,
Accepted 6th Apr 2022,
Online 21st May 2022

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ABSTRACT: In viral hepatitis, secondary glomerular lesions are slow, but in one third of patients, this process develops steadily and manifests itself as a nephrotic syndrome, worsening the patient's condition with the manifestation of renal failure. The purpose of this study is to examine the clinical and biochemical aspects of damage to the functional state of the kidneys in chronic viral Hepatitis B and C. The study involved 198 patients with positive HBV and HCV serological markers and clinical and laboratory syndromes of kidney damage.

KEYWORDS: Chronic Glomerulonephritis, Chronic Hepatitis B, Hepatitis C, Extracapillary, Endocapillary, Immunocomplex, Hepatocyte, Autoantibody.

INTRODUCTION

Relevance. Chronic viral V, C hepatitis, which prevails among all diseases of the liver, is one of the most important problems of modern Hepatology due to its ubiquitous prevalence and frequent occurrence. According to WHO, there are approximately 15% of viral hepatitis B (HBV) carriers in the world and 10% of the world's population carry viral hepatitis C (HCV) carriers. [2,5] Parenteral plays a leading role in the pathogenesis, course and outcome of hepatitis immune system. The characteristic "withdrawal" of hepatitis viruses from "immune surveillance", due to the inferiority of the immune response, determines the persistence of the pathogen and the formation of the chronic course of infection. In chronic viral pathology of the liver, circulating immunoassays can provoke the appearance of extracellular lesions of organs and systems.

It is believed that hepatitis B virus can play a role in the development of glomerulonephritis. Proof of this statement: symptoms of hepatitis B virus infection in patients with various forms of glomerulonephritis and, in the first place, an increase in the frequency of detection of HBsAg; detection of HBsAg deposits in glomeruli of the kidneys and immune complex of HBsAg - anti-HBsAg, which is of primary importance in kidney damage. According to some researchers, HBsAg transport is considered to be a risk factor for the development of glomerulonephritis [6].

THE MAIN FINDINGS AND RESULTS

In patients with hepatitis B, in which there is glomerulonephritis, its morphological variants are noted: membrane, membrane- proliferative, endo - and extra-capillary, etc.

The mechanism of kidney damage associated with viral hepatitis B has not been established. There are several recommendations related to the following: direct action of HBsAg-anti-HBs immune-complexes; immune-complexes, including anti-HBc, HBeAg, anti-HBe; with the effect of destroyed hepatocytes during the period of the disease and the components of autoantibodies produced in them.

Glomerulonephritis (GN) occupies one of the leading places due to the severity of complications in the structure of kidney pathology, difficult to diagnose, poor prognosis of most forms of imperfect therapy and chronic. To date, GN is a kidney disease, which, in addition to the primary, has the importance of secondary lesion, which often develops within the framework of a certain systemic or metabolic-endocrine pathology, the spectrum of which is very wide. The systemic nature of the process associated with the kidneys is characteristic of viral hepatitis, which is transmitted through the blood, in particular, HBV and HCV. Secondary glomerular lesions in viral hepatitis in adults persist gradually; but in a third of patients, the process is developing steadily, it can manifest itself as a nephrotic syndrome, worsens the patient's condition with the manifestation of renal failure, it is difficult to respond to anti-inflammatory therapy and requires the use of extracorporeal methods. treatment of immuno-complex pathology (plasmapheresis, hemo-sorption) [1, p. 3].

The purpose of this study is to examine the clinical and biochemical aspects of damage to the functional state of the kidneys in chronic viral B and C Hepatitis.

Materials and methods. This study involved 198 patients with positive HBV and HCV serological symptoms and clinical and laboratory syndrome of kidney damage (glomerulonephritis). Of these, 47,8 percent (95 of them) were men, 52.2 percent (103 of them) were women. The average age of the respondents was $52 \pm 3,7$ years.

To compare the course of the disease, 32 patients with chronic viral hepatitis-related glomerulonephritis, who were not infected with hepatitis viruses, were included in the study.

The study was conducted in the Nephrology Department of the Bukhara regional Multidisciplinary Medical Center.

In the examination of patients, anamnetic data were collected, anthropometric indicators were measured, body type was determined, the state of organs and systems was assessed, blood pressure was measured, All subjects underwent functional examination, biochemical blood test with determination of glomerular filtration rate of ALT, AST, bilirubin and its fractions, total protein and its fractions, urea and creatinine levels, GFR (according to the CKD-EPI equation), general urine analysis with determination of daily proteinuria. In all the tests, the symptoms of hepatitis B and C were detected by Elisa, as well as ultrasound of the kidneys and liver.

Diagnosis of chronic glomerulonephritis (CGN) was determined on the basis of anamnetic and clinical and biochemical data: edema syndrome, high blood pressure, fundus changes are characteristic of nephrogenic hypertension, an increase in urea and creatinine, hypo-proteinemia, dysproteinemia, proteinuria (more than 1 g / day), characteristic urinary sediment (hematuria, cylindrical).

Patients were examined in accordance with the recommendations of WHO experts on the health care system [WHO, Geneva, 2012]. In carrying out the study, we adhered to all moral principles of medical research with the participation of people adopted in 1964 year in the Declaration of Helsinki of the World Medical Association (the last addition in 2008 at the 59th General Assembly of the World Medical Association in Seoul).

The data obtained were processed by non-parametric statistical method using computer program. correlation with $p < 0.05$ is considered statistically significant.

RESULTS AND DISCUSSION

The results of our survey showed the following data: the frequency of detection of chronic hepatitis B is 47%, chronic hepatitis C is 41.4%. 11,6% were diagnosed with mixed infection, in which there are signs of hepatitis B and C (Table 1).

In the analysis of the results of clinical and laboratory studies, the frequency and severity of clinical symptoms of chronic glomerulonephritis and the degree of laboratory symptoms of this disease in all groups of patients were studied. At the same time, the clinical picture of the disease is characterized by the development of nephrotic syndrome, hematuria, arterial hypertension.

Attention was paid to the presence of pronounced peripheral edema, the presence of free fluid in the abdominal and pleural cavities, the level of increased blood pressure and the severity of splenomegaly. Functional ability of the kidneys is assessed by serum creatinine level and glomerular filtration rate. Kidney function is assessed by glomerular filtration rate (GFR). The calculation of GFR is mandatory. The most reasonable and reliable way to determine the GFR is its automatic calculation in biochemical Laboratories, which should give two results - serum creatinine concentration and approximate GFR. We calculated the GFR using the CKD-EPI method, taking into account the level of creatinine in the blood serum, race, sex and age of the patient.

Table 1 The frequency of detection of types of chronic hepatitis in patients with chronic glomerulonephritis (CGN)

	Group 1 CGN with HBV n=93	Group 2 CGN with HCV n=82	Group 3 CGN with VH B+C n=23	Patients with CGN and without chronic viral hepatitisn=32
Age	44,1±3,1	38,3 ±4,2	33,7±7	48,4±8,5
Gender: male	52	40	14	11
famale	41	42	9	21
Duration Current(years):	6,8±0,7	7,2±0,8	6,9±1,4	7,1±1,2
CGN	4,6±0,5	4,2±0,5	3,9±0,8	
CVH				

The clinical picture of liver damage in the investigated patients was assessed taking into account the syndromes of cytolysis (increased activity of ALT and AST), cholestasis (increased activity of GGT (Gamma-glutamyltransferase), gidroxide phosphatase, bilirubin), jaundice (increased activity of total bilirubin due to direct fraction).

Results of urine analysis, proteinuria, hematuria level and severity were analyzed in all groups. (Table 2)

Table 2. Clinical and laboratory parameters of patients with CGN on the background of CVH

Indicators	Group 1 CGN with HBV n=93	Group 2 CGN with HCV n=82	Group 3 CGN with VH B+C n=23	Patients with CGN and without chronic viral hepatitis n=32
Peripheral edema (%)	65,6	41,2	90	58,3
Ascites (%)	29,1	33,6	46,7	12,6
Arterial hypertension (%)	25,3	26,6	31,2	41,3
Splenomegaly (%)	34,6	39,5	47,8	20,3

Proteinuria (g/day)	4,1±0.3	3,9±0.2	5,9±0.2	4,3±0.3
Total protein (g/l)	57,6±1.1	52,3±1.3	46,1±1.4	52,5±1.5
Albumins (g/l)	39,9±1.3	38,3±1.2	25,7±1.4	39,7±1.3
GFR ml	66,6±2.3	62,9±2.2	50,7±2.6	69,3±1.8
ALT (IU/L)	46,2±2.1	47,7±2.9	51,9±3.5	53,5±3.3
AST, (IU/l)	48,4±1.2	49,1±1.8	61,2±1.5	40,4±1.9

Analysis of the results shows that the incidence of clinical symptoms of chronic glomerulonephritis increases in patients with CGN associated with CVH. The severity of edematous syndrome is more common in the group of CGN patients with hepatitis B+C (90%). In patients of this group, the incidence of arterial hypertension also prevails in other groups [7,8].

In patients with CGN-related CVH (47.8%), the incidence of splenomegaly syndrome is higher (20.3%) than in patients with glomerulonephritis who are not infected with B and C viruses.

The results of the analysis of biochemical analysis showed that the level of liver damage (according to the results of ALT and AST levels) was higher in patients with CGN-related CVH than in patients with glomerulonephritis who were not infected with hepatitis B and C viruses. It is possible to see the degree of kidney damage. Because, GFR indicators are low in patients with CGN-related CVH.

Comparison of blood protein metabolism, GFR level and daily proteinuria indicators revealed the following characteristics of CVH associated with CGN: the most serious changes that contribute to the development of CGN (hypoproteinemia, proteinuria, a decrease in GFR) are more typical for patients with CGN with the Association of CVH C and B + C compared with CVH B and CVH C.

CONCLUSION

In conclusion, it should be noted that chronic viral hepatitis associated with kidney damage is very common and can lead to various developmental delays and various clinical and morphological manifestations. Undoubtedly, the awareness of infectious agents and nephrologists in this area of Medicine, their closer interaction in this direction, is necessary for the diagnosis and treatment of this complex associated pathology.

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